

OCT 24 2006

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)

**AMENDMENTS TO THE CLAIMS:**

The following listing of claims will replace all previous claims and listings in the application.

1. (Currently amended) A porous material comprising a copolymer of at least one hydrophobic monomer and at least one hydrophilic monomer, wherein said copolymer further comprises at least one ion-exchange functional moiety selected from the group consisting of a cyclic tertiary amine and a substituted cyclic amine.
2. (Original) The porous material of claim 1, wherein the porous material comprises a porous particle that comprises said copolymer.
3. (Original) The porous material of claim 2, wherein said copolymer is non-sulfonated.
4. (Currently amended) The porous material of claim 2, wherein said substituted cyclic amine is substituted by an electron withdrawing group.
5. (Original) The porous material of claim 2 wherein said hydrophobic monomer is divinylbenzene or styrene.
6. (Original) The porous material of claim 2 wherein said hydrophilic monomer is N-vinylpyrrolidone or N-vinyl acetamide.
7. (Original) The porous material of claim 2 wherein said copolymer is a poly(divinylbenzene-co-N-vinylpyrrolidone).
8. (Currently amended) The porous material of claim 2 wherein the hydrophobic monomer is substituted by at least one haloalkyl group, and the ion-

USSN 10/782,397  
 Amendment and Response to  
 Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)

exchange functional moiety is formed by reaction of the haloalkyl group with an appropriate starting amine to form an amine selected from the group consisting of a cyclic tertiary amine and a substituted cyclic amine.

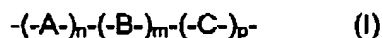
9. (Currently amended) The porous material of claim 8, wherein said haloalkyl is fluoromethyl, chloromethyl, bromomethyl or iodomethyl.

10. (Currently amended) The porous material of claim 8, wherein the appropriate starting amine is an amine selected from the group consisting of azirane, azetane, azolane, azinane, azepane, azocane, azonane, azecane, diazatene, diazolane, diazinane, N-methyldiazinane, diazepane, diazocane, diazonane, diazecane, oxazetane, oxazolane, oxazinane, oxazepane, oxazocane, oxazonane, oxazecane, thiazetane, thiazolane, thiazinane, thiazepane, thiazocane, thiazonane, thiazecane, imidazole, piperidine, piperazine, N-methylpiperazine, and morpholine.

11. - 27. (Cancelled)

28. (Withdrawn) The porous material of claim 1, wherein the porous material comprises a monolith that comprises said copolymer.

29. (Withdrawn) A copolymer having the formula I:



and salts thereof,

wherein the order of repeat units A, B and C may be random, block, or a combination of random and block;

wherein

$$\frac{1}{p+n} < (p+n) < 100$$

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

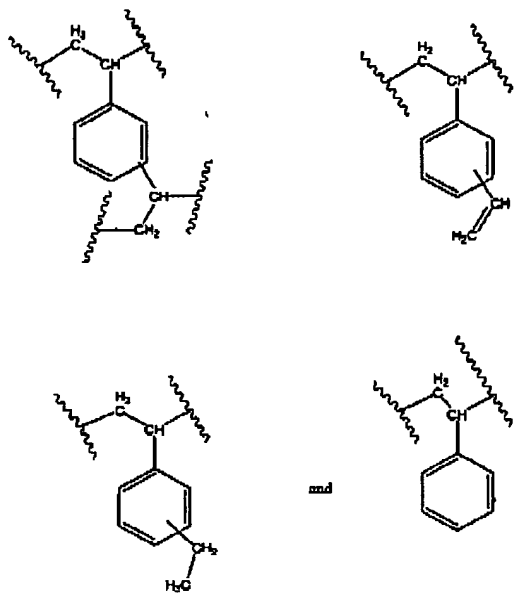
Attorney Docket No. 60505CIP2 (49991)

100 m 1

and

$\frac{1}{500} < p < \frac{100}{n}$

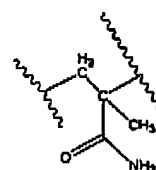
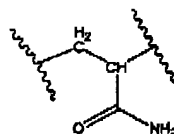
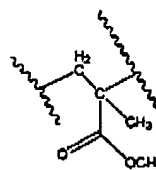
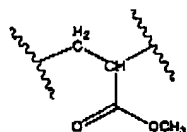
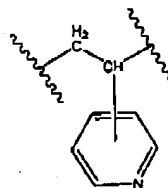
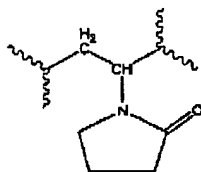
wherein A is selected from the group consisting of



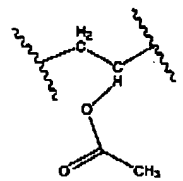
wherein B is selected from the group consisting of

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)



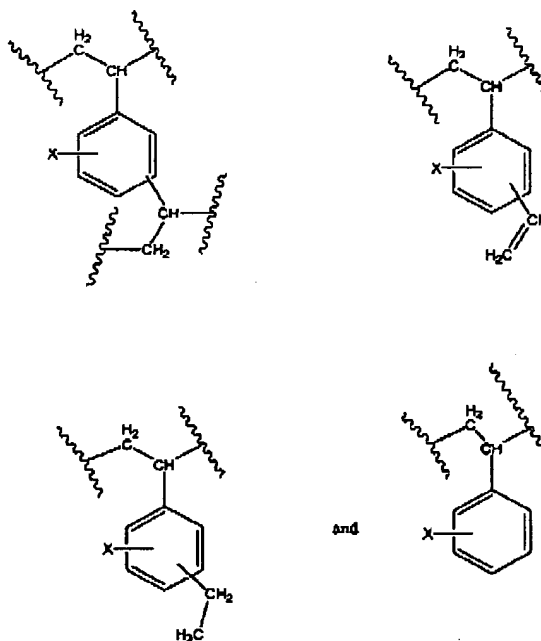
and



wherein C is modified A, wherein modified A is selected from the group consisting of

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)



and

wherein X is  $-\text{CR}_1\text{R}_2\text{NR}_3\text{R}_4$  wherein:

$\text{R}_1$  and  $\text{R}_2$  are the same or different and each is hydrogen or  $\text{C}_1\text{-C}_6$  alkyl;

$\text{R}_3$  and  $\text{R}_4$  are the same or different and each is hydrogen, an electron withdrawing group,  $\text{C}_1\text{-C}_{20}$  alkyl,  $\text{C}_1\text{-C}_{20}$  alkyl substituted by an electron withdrawing group, or  $\text{R}_3$  and  $\text{R}_4$  taken together form a carbocyclic ring or a heterocyclic ring, wherein the carbocyclic ring or heterocyclic ring can be substituted by an electron withdrawing group, provided that (i)  $\text{R}_1$ ,  $\text{R}_2$ ,  $\text{R}_3$ , and  $\text{R}_4$  are not all hydrogen; (ii) if  $\text{R}_1$  and  $\text{R}_2$  are hydrogen, then  $\text{R}_3$  and  $\text{R}_4$  are not both unsubstituted  $\text{C}_1\text{-C}_{20}$  alkyl; and (iii) if  $\text{R}_1$  and  $\text{R}_2$  are hydrogen, and either of  $\text{R}_3$  and  $\text{R}_4$  is hydrogen, then the other of  $\text{R}_3$  and  $\text{R}_4$  is not polyethylenimine.

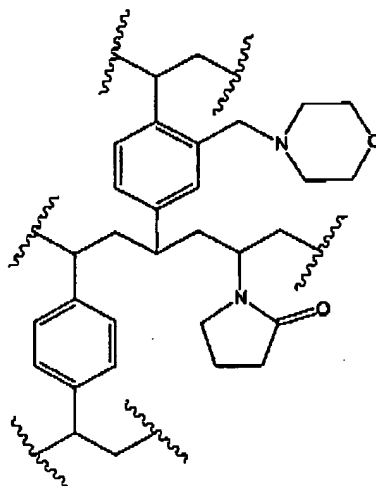
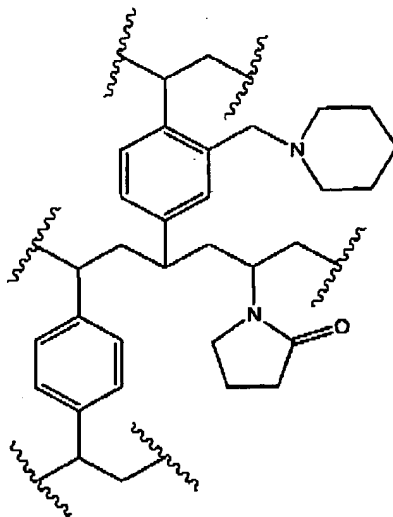
30. (Withdrawn) A porous material comprising the copolymer of claim 29.

31. – 49. (Cancelled).

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

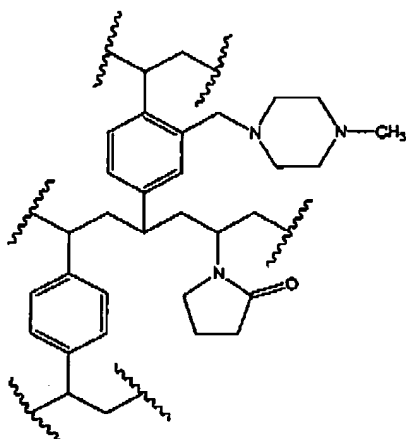
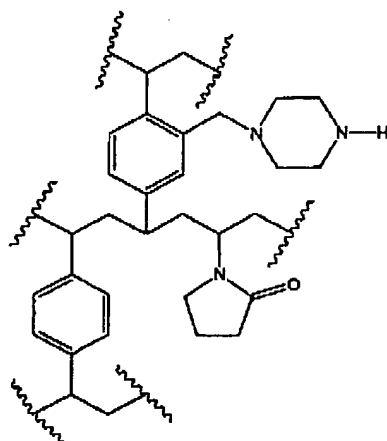
Attorney Docket No. 60505CIP2 (49991)

50. (Withdrawn) The copolymer of claim 29 which is selected from the group consisting of



US 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

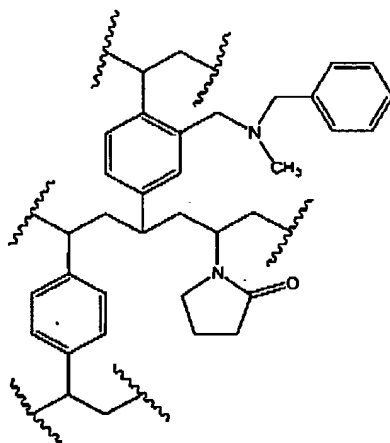
Attorney Docket No. 60505CIP2 (49991)



and

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)



51.-54. (Cancelled).

55. (Withdrawn) A porous material comprising the copolymer of claim 50.

56. (Withdrawn) The porous material of claim 55, wherein the porous material comprises a porous particle that comprises said copolymer.

57. (Withdrawn) The porous material of claim 55, wherein the porous material comprises a monolith that comprises said copolymer.

58. (Original) A solid phase extraction or chromatography material comprising the porous material of claim 1.

59. (Cancelled)

60. (Previously presented) A porous particle comprising the copolymer recited in claim 1.

61. (Cancelled)



USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)

62. (Withdrawn) A porous monolith comprising the copolymer recited in claim 1.

63. (Cancelled)

64. (Withdrawn) A method for removing or isolating a component from a mixture comprising:

contacting the mixture with a chromatographic material comprising the porous material according to claim 1, to thereby remove or isolate the component from the mixture.

65. (Withdrawn) A method for determining the level of a component in a mixture, comprising:

contacting the mixture with a chromatographic material comprising the porous material according to claim 1 under conditions that allow for sorption of the component onto the porous materials;

washing the chromatographic material having the sorbed component with a solvent under conditions so as to desorb the component from the porous materials; and

determining the level of the desorbed component.

66. (Original) A separation device comprising the porous material according to claim 1.

67. (Original) The separation device of claim 66, wherein said device is selected from the group consisting of chromatographic columns, cartridges, thin layer chromatographic plates, filtration membranes, sample clean up devices, solid phase organic synthesis supports, and microtiter plates.

USSN 10/782,397  
Amendment and Response to  
Office Action dated April 24, 2006

Attorney Docket No. 60505CIP2 (49991)

68. (Cancelled)

69. (Previously presented) The separation device of claim 67, wherein said device comprises a solid phase extraction cartridge.

70. – 71. (Cancelled)